

**LIME<sup>1</sup>**

(Data in thousand metric tons unless otherwise noted)

**Domestic Production and Use:** In 2011, an estimated 19.3 million tons (21.3 million short tons) of quicklime and hydrate was produced (excluding commercial hydrators), valued at about \$2.2 billion. At yearend, there were 31 companies producing lime, which included 21 companies with commercial sales and 10 companies that produced lime strictly for internal use (for example, sugar companies). These companies had 72 primary lime plants (plants operating lime kilns) in 28 States and Puerto Rico. The 4 leading U.S. lime companies produced quicklime or hydrate in 24 States and accounted for about 72% of U.S. lime production. Principal producing States were Alabama, Kentucky, and Missouri (each with production of more than 2 million tons), and Nevada, Ohio, Pennsylvania, and Texas (each with production of more than 1 million tons). Major markets for lime were, in descending order of consumption, steelmaking, flue gas desulfurization, construction, water treatment, mining, precipitated calcium carbonate, and pulp and paper.

<b>Salient Statistics—United States:</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011<sup>e</sup></b>
Production <sup>2</sup>	20,200	19,900	15,800	18,300	19,300
Imports for consumption	375	307	422	445	510
Exports	144	174	108	215	230
Consumption, apparent	20,400	20,000	16,100	18,500	19,600
Quicklime average value, dollars per ton at plant	84.60	89.90	102.00	102.70	112.00
Hydrate average value, dollars per ton at plant	102.40	107.20	126.40	125.00	131.00
Stocks, yearend	NA	NA	NA	NA	NA
Employment, mine and plant, number	5,300	5,400	4,800	5,000	5,000
Net import reliance <sup>3</sup> as a percentage of apparent consumption	1	1	2	1	1

**Recycling:** Large quantities of lime are regenerated by paper mills. Some municipal water-treatment plants regenerate lime from softening sludge. Quicklime is regenerated from waste hydrated lime in the carbide industry. Data for these sources were not included as production in order to avoid duplication.

**Import Sources (2007–10):** Canada, 88%; Mexico, 11%; and other, 1%.

<b>Tariff: Item</b>	<b>Number</b>	<b>Normal Trade Relations 12-31-11</b>
Calcined dolomite	2518.20.0000	3% ad. val.
Quicklime	2522.10.0000	Free.
Slaked lime	2522.20.0000	Free.
Hydraulic lime	2522.30.0000	Free.

**Depletion Allowance:** Limestone produced and used for lime production, 14% (Domestic and foreign).

**Government Stockpile:** None.

**Events, Trends, and Issues:** In 2011, domestic lime production was bolstered by increased steel production, which is the leading market for lime. Through the end of October 2011, U.S. steel production was up by 7% compared with that in the same period in 2010.

Lime prices increased in 2011, with quicklime prices up about 9% and hydrate prices rising nearly 5% compared with those of 2010. Price increases were the result of increased production costs and increasing environmental costs. Increased production of higher priced dolomitic quicklime used for steelmaking also may have contributed to the higher quicklime price.

The U.S. Environmental Protection Agency (EPA) published a final rule titled “Standards of performance for new stationary sources and emission guidelines for existing sources—Commercial and industrial solid waste incineration units.” The rule places new restrictions on materials that may legally be combusted in lime kilns and other combustion units. The rule created a new definition of nonhazardous materials that are solid waste when they are burned. This definition is important because solid wastes could not be burned in ordinary combustion units, such as boilers and lime kilns, but instead would need to be burned in a commercial or industrial solid waste incinerator. Several types of nonhazardous materials are burned in lime kilns or have been tested for their suitability as fuel. These materials include carpet, chipped tires, cocoa husks, creosote-treated wood, glycerin, landfill gas, municipal waste, paper, plastics, resins, sawdust, wood chips, and various types of engineered fuel. The EPA’s new rule could result in lime companies discontinuing the burning of some of these materials in lime kilns.

## LIME

September 30 was the deadline for the lime industry to begin electronically submitting greenhouse gas (GHG) reports to the EPA. Pursuant to the greenhouse gas reporting rule (40 CFR part 98), facilities that emit 25,000 tons or more per year of GHGs are required to report annually to the EPA.

### **World Lime Production and Limestone Reserves:**

	Production		Reserves <sup>4</sup>
	<u>2010</u>	<u>2011<sup>e</sup></u>	
United States	18,300	19,300	Adequate for all countries listed.
Australia	2,000	1,900	
Belgium	2,000	2,200	
Brazil	7,700	8,300	
Canada	1,910	1,900	
China	190,000	200,000	
France	3,500	3,600	
Germany	6,850	7,100	
India	14,000	15,000	
Iran	2,700	2,900	
Italy <sup>5</sup>	6,000	6,600	
Japan (quicklime only)	7,200	7,200	
Korea, Republic of	3,900	4,500	
Mexico	5,800	6,200	
Poland	1,800	2,000	
Romania	2,000	2,000	
Russia	8,000	8,200	
South Africa (sales)	1,286	1,000	
Spain	2,200	2,200	
Turkey (sales)	4,300	4,900	
Ukraine	4,220	4,400	
United Kingdom	1,500	1,500	
Vietnam	1,600	1,700	
Other countries	<u>11,900</u>	<u>12,000</u>	
World total (rounded)	<u>311,000</u>	<u>330,000</u>	

**World Resources:** Domestic and world resources of limestone and dolomite suitable for lime manufacture are adequate.

**Substitutes:** Limestone is a substitute for lime in many applications, such as agriculture, fluxing, and sulfur removal. Limestone, which contains less reactive material, is slower to react and may have other disadvantages compared with lime, depending on the application; however, limestone is considerably less expensive than lime. Calcined gypsum is an alternative material in industrial plasters and mortars. Cement, cement kiln dust, fly ash, and lime kiln dust are potential substitutes for some construction uses of lime. Magnesium hydroxide is a substitute for lime in pH control, and magnesium oxide is a substitute for dolomitic lime as a flux in steelmaking.

<sup>e</sup>Estimated. NA Not available.

<sup>1</sup>Data are for quicklime, hydrated lime, and refractory dead-burned dolomite. Includes Puerto Rico.

<sup>2</sup>Sold or used by producers.

<sup>3</sup>Defined as imports – exports + adjustments for Government and industry stock changes; stock changes are assumed to be zero for apparent consumption and net import reliance calculations.

<sup>4</sup>[See Appendix C for resource/reserve definitions and information concerning data sources.](#)

<sup>5</sup>Includes hydraulic lime.